D-Series

HYDRAULIC-MAGNETIC CIRCUIT BREAKER

Designed for snap-on-back panel rail mounting on either a 35mm x 7.5mm, or a 35mm x 15mm Symmetrical Din Rail, allowing rapid and simple mounting and removal of the breaker. It features recessed, wire-ready, touch-proof, shock-resistant terminals, suitable for automatic screwdriver assembly, as well as “Dead Front” construction characteristics.

Available with a Visi-Rocker two-color actuator, which can be specified to indicate either the ON or the TRIPPED/OFF mode, or solid color rocker or handle type actuators. All actuator types fit in the same industry standard panel cutouts.

Product Highlights:
• 0.02 - 50 Amps
• 480 VAC or 65 VDC
• 1-4 poles (Handle)
• 1-3 poles (Rocker)
• Choice of Time Delays
• DIN rail mounting
• Precise temperature independent operation
• Wiping contacts – mechanical linkage with two-step
• Finger safe terminals
• Common trip linkage between poles ensures that an overload in one pole will trip all adjacent poles

Typical Applications:
• Industrial Controls
• Renewable Energy

Resources:
Configure a Complete Part
Download CAD & Sales Drawing

Carling Technologies
**Electrical**

Maximum Voltage  
AC, 480 wye/277 VAC  
(See Table A), 50/60 Hz, 65VDC  
0.100, 0.250, 0.500, 0.750, 1.00,  
2.50, 5.00, 7.50, 10.0, 15.0, 20.0,  
25.0, 30.0, 35.0, 40.0 & 50.0.  
Other ratings available - consult factory.

Standard Current Coils  
DC - 6V, 12V; AC - 120V, other  
ratings available, see ordering  
scheme.

Standard Voltage Coils  
Minimum of 100 Megohms at 500  
VDC.

Dielectric Strength  
UL, CSA: 1960 V 50/60 Hz for one  
minute between all electrically  
isolated terminals. D-Series circuit  
breakers comply with the 8mm  
spacing and 3750V 50/60 Hz  
dielectric requirements from  
hazardous voltage to operator  
accessible surfaces and between  
adjacent poles per Publications  
EN 60950 and VDE 0805.

Resistance, Impedance  
Values from Line to Load Terminal -  
based on Series Trip Circuit  
Breaker

**Mechanical**

Endurance  
10,000 ON-OFF operations @ 6  
per minute; with rated Current  
and Voltage.

Trip Free  
All D-Series Circuit Breakers will  
trip on overload, even when  
actuator is forcibly held in the ON  
position.

Trip Indication  
The operating actuator moves  
positively to the OFF position  
when an overload causes the  
breaker to trip.

**Physical**

Number of Poles  
Rocker Type: 1-3; Handle Type:  
1-4

Internal Circuit Config.  
Switch Only and Series Trip with  
current or voltage trip coils.

Weight  
Approximately 128 grams/pole  
(Approximately 4.57 ounces/pole)

Standard Colors  
Housing - Black; Actuator - See  
Ordering Scheme.

Mounting  
Mounts on a standard 35mm  
Symmetrical DIN Rail (35 x 7.5 or  
35 x 15mm per DIN EN5002).

**Environmental**

Designed and tested in accordance with requirements of  
specification MIL-PRF-55629 & MIL-STD-202 as follows:

Shock  
Withstands 100 Gs, 6ms, sawtooth  
while carrying rated current per  
Method 213, Test Condition “I”.  
Instantaneous and ultra-short  
curves tested @ 90% of rated  
current.

Vibration  
Withstands 0.060” excursion from  
10-55 Hz, and 10 Gs 55-500 Hz,  
at rated current per Method 204C,  
Test Condition A. Instantaneous  
and ultra-short curves tested at  
90% of rated current.

Moisture Resistance  
Method 106D, i.e., ten 24-hour  
cycles @ +25°C to +65°C, 80-  
98% RH.

Salt Spray  
Method 101, Condition A (90-95%  
RH @ 5% NaCl Solution, 96 hrs).

Thermal Shock  
Method 107D, Condition A (Five  
cycles @ -55°C to +25°C to +85°C  
to +25°C).

Operating Temperature  
-40° C to +85° C

*Manufacturer reserves the right to change product specification without prior notice.*
### Electrical Tables

**Table A:** Lists UL Recognized, CSA Accepted and VDE Certified configurations and performance capabilities as a Component Supplementary Protector.

<table>
<thead>
<tr>
<th>CIRCUIT CONFIGURATION</th>
<th>VOLTAGE</th>
<th>CURRENT RATING</th>
<th>SHORT CIRCUIT CAPACITY (AMPS)</th>
<th>APPLICATION CODES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MAX. RATING</td>
<td>FREQUENCY</td>
<td>PHASE</td>
<td>FULL LOAD AMPS</td>
</tr>
<tr>
<td>SERIES</td>
<td>65</td>
<td>DC</td>
<td>---</td>
<td>0.02 - 50</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>DC</td>
<td>---</td>
<td>0.02 - 50</td>
</tr>
<tr>
<td></td>
<td>125 / 250</td>
<td>50 / 60</td>
<td>1</td>
<td>0.02 - 50</td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>50 / 60</td>
<td>1 &amp; 3</td>
<td>0.02 - 50</td>
</tr>
<tr>
<td></td>
<td>277</td>
<td>50 / 60</td>
<td>1</td>
<td>0.02 - 50</td>
</tr>
<tr>
<td></td>
<td>480 Y 3</td>
<td>50 / 60</td>
<td>1 &amp; 3</td>
<td>0.02 - 50</td>
</tr>
<tr>
<td>SWITCH ONLY</td>
<td>65</td>
<td>DC</td>
<td>---</td>
<td>0.02 - 50</td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>50 / 60</td>
<td>3</td>
<td>0.02 - 50</td>
</tr>
<tr>
<td></td>
<td>277</td>
<td>50 / 60</td>
<td>1</td>
<td>0.02 - 50</td>
</tr>
<tr>
<td></td>
<td>480 Y 3</td>
<td>50 / 60</td>
<td>1 &amp; 3</td>
<td>0.02 - 30</td>
</tr>
</tbody>
</table>

**Agency Certifications**

**UL Recognized**
UL Standard 1077

**UL Listed**
UL Standard 508

**CSA Accepted**
Component Supplementary Protector under Class 3215 30,
File 047848 0 000
CSA Standard C22.2 No. 235

**VDE Certified**
EN60934, VDE 0642 under File No. 10537

**Notes:**
1. DC and 1 Phase 277 V ratings are 1 or 2 poles breaking. Three phase ratings are 3 poles breaking.
2. Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse rated 15A minimum and no more than 4 times full load amps not to exceed 150 A for 250V rating and 125 A for 277 and 480 V ratings.
3. UL recognition and CSA Acceptance at 480 volts refers to 3 and 4 pole versions, used only in a 3 phase WYE connected circuit or 2 pole versions connected with 2 poles breaking 1 phase and backed up with series fusing per note 2.
**D-Series Circuit Breaker - Handle & Rocker - Ordering Scheme**

### 1 Series

**D**

### 2 Actuator

**Handle**

- **A**: Handle, one per pole
- **B**: Handle, one per multipole unit

**Visi-Rocker**

- **C**: Indicate ON, vertical legend
- **D**: Indicate ON, horizontal legend
- **E**: Indicate ON, no legend (VDE approval not available with no legend)
- **F**: Indicate OFF, vertical legend
- **G**: Indicate OFF, horizontal legend
- **H**: Indicate OFF, no legend (VDE approval not available with no legend)

**Single Color Rocker**

- **J**: Vertical legend
- **K**: Horizontal legend
- **L**: No legend (VDE approval not available with no legend)

### 3 Poles

- **1 Pole**: One
- **2 Poles**: Two
- **3 Poles**: Three
- **4 Poles**: Four

### 4 Circuit

- **A0**: Switch Only (No Coil)
- **B0**: Series Trip (Current)
- **C0**: Series Trip (Voltage)

### 5 Frequency & Delay

- **03**: DC 50/60Hz, Switch Only
- **10**: DC Instantaneous
- **11**: DC Ultra Short
- **12**: DC Short
- **14**: DC Medium
- **16**: DC Long
- **20**: 50/60Hz Instantaneous
- **21**: 50/60Hz Ultra Short
- **22**: 50/60Hz Short
- **24**: 50/60Hz Medium

### 6 Current Rating

- **020**: 275 0.750
- **025**: 280 0.800
- **030**: 285 0.850
- **050**: 410 1.000
- **075**: 512 1.250
- **080**: 413 1.300
- **085**: 414 1.400
- **100**: 415 1.500
- **150**: 517 1.750
- **200**: 420 2.000
- **250**: 522 2.250
- **300**: 425 2.500
- **350**: 527 2.750
- **400**: 430 3.000
- **450**: 532 3.250
- **500**: 435 3.500
- **550**: 436 3.600
- **600**: 440 4.000
- **650**: 445 4.500
- **700**: 547 4.750

### 7 Terminal

- **1**: #10 Screw & Pressure Plate for Direct Wire Connection
- **2**: #10 Screw without Pressure Plate

### 8 Actuator Color & Legend

**Actuator Color**

- **I-O**: Off
- **ON-OFF**: On-Off
- **Dual**: Dual Actuator

**Single Color Rocker/Handle**

- **A**: Black
- **B**: Orange
- **C**: Yellow
- **D**: Green
- **E**: Red
- **F**: Blue

**Visi-Rocker**

- **G**: Indicate ON, horizontal
- **H**: Indicate ON, vertical
- **I**: Indicate OFF, horizontal
- **J**: Indicate OFF, vertical

### 9 MOUNTING/VOLTAGE

**Mounting Style**

- **A**: 6 DC, 5 DC
- **B**: 12 DC, 10 DC
- **C**: 18 DC, 15 DC
- **D**: 24 DC, 20 DC
- **E**: 32 DC, 26 DC

**Voltage**

- **A06**: 65 DC, 55 DC
- **A12**: 65 DC, 55 DC
- **A18**: 65 DC, 55 DC
- **A24**: 65 DC, 55 DC
- **A32**: 65 DC, 55 DC

### 10 Agency Approval

- **C**: UL Recognized & CSA Accepted
- **D**: VDE Certified, UL Recognized & CSA Accepted

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Notes:

1. Handle breakers available up to four poles. Rocker breakers available up to three poles.
2. Actuator Code:
   - **A**: Multi-pole units factory assembled with common handle tie.
   - **B**: Handle location as viewed from front of breaker:
     - 2 pole - left pole
     - 3 pole - center pole
     - 4 pole - two handles at center poles
   - **C**: Multipole breaker has one rocker per breaker, as viewed from the front of the panel.
   - **D**: Three pole breaker 30 or 2 pole breaker 10, UL/CSA limited to 30 FLA max.
   - **E**: VDE Approval requires Dual (I-O, ON-OFF) or I-O markings.
Circuit & Terminal Diagrams: in. [mm]

**Notes:**

1. All dimensions are in inches [millimeters].

**TABLE A**

<table>
<thead>
<tr>
<th>THREAD SIZE</th>
<th>TORQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-32 [MS] HARDWARE</td>
<td>7.0 IN-LBS (0.812 NM)</td>
</tr>
<tr>
<td>4-40-32 THD TERMINAL SCREW</td>
<td>15-50 IN-LBS (1.7-6.3 NM)</td>
</tr>
</tbody>
</table>

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TERMINALS ARE SUPPLIED WITH 4-40-32 SCREW AND PRESSURE PLATE PER TERMINAL.
Dimensional Specifications: in. [mm]

**INDICATE “ON”**

**INDICATE “OFF” & SINGLE COLOR (INDICATE “OFF” SHOWN)**

**1-POLE (DC1)**

**1-POLE (DF1)**

**2-POLE (DC2)**

**2-POLE (DF2)**

**3-POLE (DC3)**

**3-POLE (DF3)**

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Notes:

1. All dimensions are in inches [millimeters].
3. Dimensions apply to all variations shown. Notice that circuit breaker line and load terminal orientation on indicate OFF is opposite of indicate ON.
4. For pole orientation with horizontal legend, rotate front view clockwise 90°.

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Dimensional Specifications: in. [mm]

Notes:
1. All dimensions are in inches [millimeters].
Authorized Sales Representatives and Distributors

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About Carling

Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With four ISO9001 and IATF16949 registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit www.carlingtech.com/company-profile.

To view all of Carling’s environmental, quality, health & safety certifications please visit www.carlingtech.com/environmental-certifications
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